

# ENERGY WISE PROJECTS

## ► Doing Double Duty

### **Bold New Cogeneration Plant Provides Power and Saves Energy**

#### **Commander Fleet Activities Yokosuka (CFAY), Japan**



### **The Challenge**

Commander, Fleet Activities Yokosuka, Japan (CFAY) is the Navy's largest, most strategically important overseas installation. The existing steam plant was inefficient and was churning through more than 8 million gallons of liquid fuel each year—and the installation needed still more power to meet demand.

### **The Solution**

CFAY has installed a \$105 million 39-megawatt cogeneration power plant that supports both the Fleet and shore energy requirements, power equal to the load of 26,000 homes. Cogeneration is a combined heat and power system that conserves heat wasted in normal generation and redirects it to provide heating, and in some applications, cooling and dehumidification.

With the new plant, CFAY will have 45 megawatts (MW) of firm 60 Hertz (Hz) system capacity and increase the facility's 50 Hz capacity by 35 percent. This plant incorporates three gas turbine generators, three reciprocating engine generators, major upgrades to the steam generation and distribution systems, plus a new gas line to the base.

The plant will deliver reliable energy to meet the Navy's utility demands and is designed to meet all capacity needs, even in the failure and complete shut down of a single turbine. It's expected to greatly increase energy efficiency at CFAY.



## The Funding

The \$105 million price was funded through the Energy Savings Performance Contract (ESPC) program managed by the Naval Facilities Engineering Command's Engineering Service Center (NAVFAC ESC). It is the largest ESPC in the Navy. It is financed over 20 years by the contractor, NORESKO, and involves a firm fixed price, with no money down and a contract that included no progress payments.

## The Bottom Line

### ▶ Energy Reductions

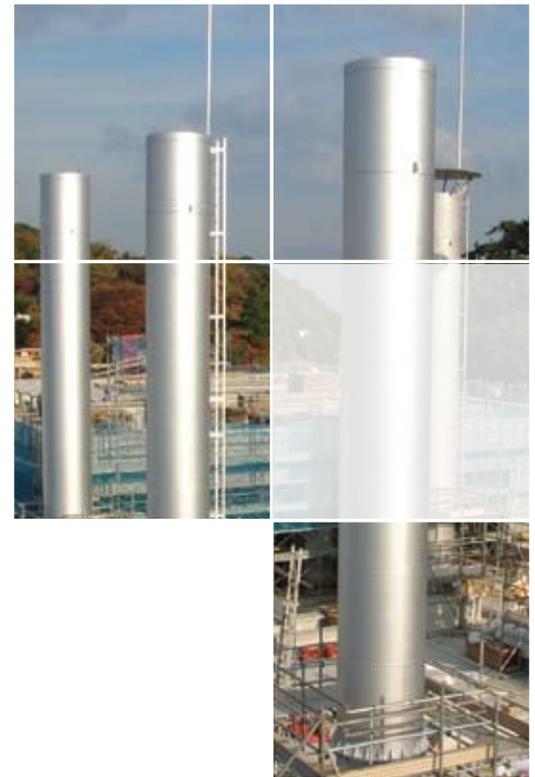
- Saves 582 billion British thermal units per year in energy.
- Saves more than 8 million gallons per year of liquid fuel.

### ▶ Cost Avoidance

- Avoids \$358 million over the contract term.
- During the 20-year term of the contract, all project related costs, including the implementation and service phase costs, will be paid from this cost avoidance.

### ▶ Collateral Benefits

- Supports both the Fleet and shore power requirements.
- 50 Hz gas turbines will increase efficiency and generate savings by running at full load 24/7, with or without Fleet 60 Hz loading.
- Provides reliable power.
- Performance is guaranteed.
- Offers emergency power on 50 Hz and 60 Hz.
- Provides natural gas service to the facility for the first time.
- Benefits the environment: reduces outputs of carbon dioxide (22 percent – nearly 62 thousand tons per year), sulfur dioxide (80 percent) and nitrogen oxide (47 percent).



## Feedback

"This project more than doubles the amount of 60 Hz power, the power that the ships use, and more than doubles the power at CFAY. Also, this is going to be done at a cost savings, and it's very friendly and very good for the environment. There are all kinds of benefits to this project. It's a fantastic project and the results are phenomenal,"

**Capt. Christopher Kiwus, NAVFAC Far East Commanding Officer.**

"This project will provide substantial energy and cost savings to the government, reduce our dependency on foreign oil and have a positive environmental impact through a dramatic reduction in harmful emissions and greenhouse gases, while also supporting the mission readiness of the Yokosuka Naval Base,"

**Neil Petchers, President & CEO, NORESKO.**

